

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

REDWOOD TECHNOLOGIES LLC,

Plaintiff,

v.

FORTINET, INC.,

Defendant.

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JURY TRIAL DEMANDED

C.A. NO. 2:22-CV-00043

PLAINTIFF’S COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Redwood Technologies LLC (“Redwood”) files this Complaint against Defendant Fortinet, Inc. (“Fortinet” or “Defendant”) for infringement of U.S. Patent No. 7,359,457 (the “’457 patent”), U.S. Patent No. 7,460,485 (the “’485 patent”), U.S. Patent No. 7,688,901 (the “’901 patent”), U.S. Patent No. 7,917,102 (the “’102 patent”), U.S. Patent No. 7,983,140 (the “’140 patent”), U.S. Patent No. 8,005,165 (the “’165 patent”), and U.S. Patent No. 8,155,224 (the “’224 patent”), collectively, the “Asserted Patents.”

THE PARTIES

1. Redwood Technologies LLC is a Texas limited liability company, with a principal place of business at 812 West McDermott Dr. #1038, Allen, TX 75013. Redwood resides in this District.

2. On information and belief, Fortinet, Inc. is a corporation organized under the laws of Delaware, with a regular and established place of business located at 6111 W. Plano Parkway, Plano, TX 75093.

3. Prior to the filing of the Complaint, Redwood sent a letter received by Fortinet on November 8, 2021, where Redwood attempted to engage Fortinet and/or its agents in licensing

discussions related to the Asserted Patents for reasonable and non-discriminatory terms for a license to be taken in the absence of litigation. Fortinet ignored Redwood's request to engage in licensing discussions. Indeed, Fortinet has known about the Asserted Patents since at least November 8, 2021, when Fortinet received notice of its infringement of the Asserted Patents via the letter sent by Redwood. Fortinet's past and continuing sales of its devices i) willfully infringe the Asserted Patents and ii) impermissibly take the significant benefits of Redwood's patented technologies without fair compensation to Redwood.

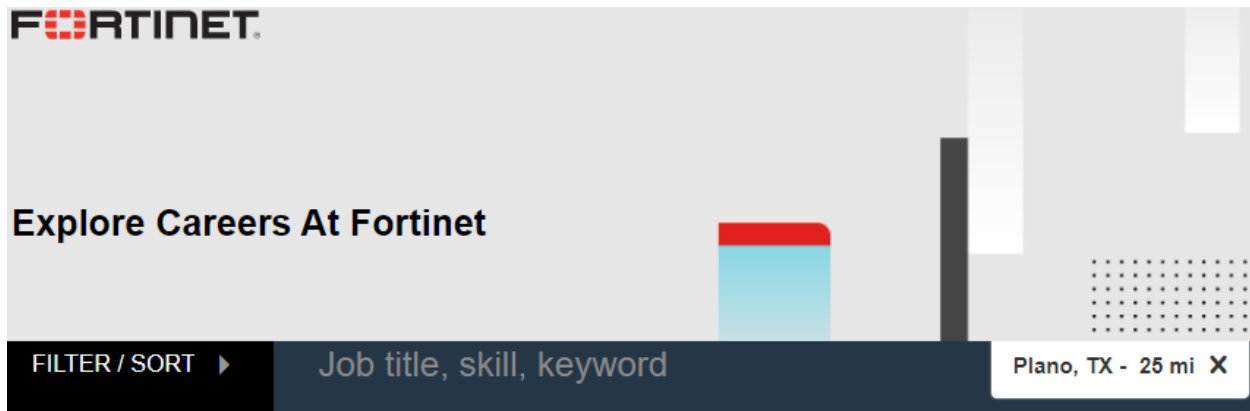
4. Fortinet is engaged in making, using, selling, offering for sale, and/or importing, and/or induces its subsidiaries, affiliates, retail partners, and customers in the making, using, selling, offering for sale, and/or importing throughout the United States, including within this District, products, such as access points, accused of infringement.

JURISDICTION AND VENUE

5. This action arises under the patent laws of the United States, namely 35 U.S.C. §§ 271, 281, and 284-285, among others.

6. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

7. This Court has personal jurisdiction over Fortinet in accordance with due process and/or the Texas Long Arm Statute because, among other things, Fortinet does business in this State by, among other things, maintaining an office located at 6111 W Plano Pkwy, Plano, TX 75093 and "recruit[ing] Texas residents, directly or through an intermediary located in this state, for employment inside or outside this state." TEX. CIV. PRAC. & REM. CODE § 17.042(3):



50 Open Jobs in Plano, TX, United States

<https://edel.fa.us2.oraclecloud.com/hcmUI/CandidateExperience/en/sites/CX/requisitions?location=Plano,%20TX,%20United%20States&locationId=300000003078988&locationLevel=city&radius=25&radiusUnit=MI>.

8. Further, this Court has personal jurisdiction over Fortinet because it has engaged, and continues to engage, in continuous, systematic, and substantial activities within this State, including the substantial marketing and sale of products and services within this State and this District. Indeed, this Court has personal jurisdiction over Fortinet because it has committed acts giving rise to Redwood's claims for patent infringement within and directed to this District, has derived substantial revenue from its goods and services provided to individuals in this State and this District, and maintains regular and established places of business in this District, including at least its facilities in Plano.

9. Relative to patent infringement, Fortinet has committed and continues to commit acts in violation of 35 U.S.C. § 271, and has made, used, marketed, distributed, offered for sale, imported, and/or sold infringing products in this State, including in this District, and otherwise engaged in infringing conduct within and directed at, or from, this District. Such products have been and continue to be offered for sale, distributed to, sold, and used in this District, and the

infringing conduct has caused, and continues to cause, injury to Redwood, including injury suffered within this District. These are purposeful acts and transactions in this State and this District such that Fortinet reasonably should know and expect that it could be haled into this Court because of such activities.

10. In addition, Fortinet has knowingly induced and continues to knowingly induce infringement within this District by advertising, marketing, offering for sale and/or selling devices pre-loaded with infringing functionality within this District, to consumers, customers, manufacturers, distributors, resellers, partners, and/or end users, and providing instructions, user manuals, advertising, and/or marketing materials which facilitate, direct or encourage the use of infringing functionality with knowledge thereof.

11. Venue is proper in this District under 28 U.S.C. §§ 1391 and 1400(b) because Fortinet has regular and established places of business in this District and has committed acts of infringement in this District. Fortinet's regular and established places of business in this District include, at least, its Plano facilities.

12. With respect to the '457 patent, the '224 patent, the '140 patent, the '102 patent, the '165 patent, and the '901 patent, the Accused Products are devices that include, but are not limited, to Defendant's access points that support IEEE 802.11n and/or IEEE 802.11ac and/or IEEE 802.11ax (e.g., FAP-831F, FAP-431F, FAP-433F, FAP-432F, FAP-231F, FAP-234F, FAP-23JF, FAP-221E, FAP-223E, FAP-C24JE, FAP-U431F, FAP-U433F, FAP-U432F, FAP-U231F, FAP-U234F, FAP-U421EV, FAP-U423EV, FAP-U422EV, FAP-U321EV, FAP-U323EV, FAP-U24JEV, AP832i, AP832e, FAP-222C, FAP-222E, FAP-223E, FAP-224E, FAP-231E, FAP-421E, FAP-423E, FAP-S221E, FAP-S223E, FAP-S321C, FAP-S323C, FAP-S421E, FAP-S422E, FAP-S423E, FAP-U221EV, FAP-U223EV), as well as, their components, and processes related

to the same. With respect to the '485 patent, the Accused Products are devices that include, but are not limited, to Defendant's access points that support Wi-Fi Multimedia ("WMM") (e.g., FAP-831F, FAP-431F, FAP-433F, FAP-432F, FAP-231F, FAP-234F, FAP-23JF, FAP-221E, FAP-223E, FAP-U431F, FAP-U433F, FAP-U231F, FAP-U421EV, FAP-U423EV, FAP-U422EV, FAP-U321EV, FAP-U323EV, FAP-U24JEV, AP832i, AP832e, FAP-222C, FAP-222E, FAP-223E, FAP-224E, FAP-231E, FAP-421E, FAP-423E, FAP-S221E, FAP-S223E, FAP-S321C, FAP-S323C, FAP-S421E, FAP-S422E, FAP-S423E, FAP-U221EV, FAP-U223EV), as well as, their components, and processes related to the same.

COUNT I

(INFRINGEMENT OF U.S. PATENT NO. 7,359,457)

13. Plaintiff incorporates paragraphs 1 through 12 herein by reference.

14. Redwood is the assignee of the '457 patent, entitled "Transmission Apparatus, Reception Apparatus and Digital Radio Communication Method," with ownership of all substantial rights in the '457 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

15. The '457 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '457 patent issued from U.S. Patent Application No. 10/827,445.

16. Fortinet has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '457 patent in this judicial district and elsewhere in Texas and the United States.

17. Fortinet directly infringes the '457 patent via 35 U.S.C. § 271(a) by making, using, offering for sale, selling, and/or importing the Accused Products, their components and processes,

and/or products containing the same that incorporate the fundamental technologies covered by the '457 patent.

18. For example, Fortinet infringes claim 1 of the '457 patent via the Accused Products. The Accused Products each comprise a transmission apparatus of claim 1.

19. The Accused Products each comprise circuitry and/or components (hardware and/or software) that determine a modulation system from among a plurality of modulation systems based on a communication situation. For example, the Accused Products utilize a Modulation and Coding Scheme (MCS) value that is used to determine the modulation, coding, and number of spatial channels based on information associated with a channel quality assessment. *See, e.g.*, Sections 19.3.5 and 19.3.13.4 of Part 11: Wireless LAN Medium Access Control (MAC) and Physical (PHY) Specifications of IEEE Std 802.11™ -2016 ("IEEE 802.11 2016"). Based on the results of the channel quality assessment, an appropriate MCS value is selected from a plurality of MCS values for transmissions sent by the Accused Products. *See, e.g.*, Section 19.3.5 and Table 19-27 of IEEE 802.11 2016.

20. The Accused Products each comprise circuitry and/or components (hardware and/or software) that modulate a digital transmission signal according to the modulation system previously determined and generates a first symbol. The first symbol comprises a first quadrature baseband signal. For example, the Accused Products generate a first data symbol (e.g., data), comprising a first quadrature baseband signal, that is modulated according to the MCS value. *See, e.g.*, Section 19.3.5 and Figure 19-22 of IEEE 802.11 2016.

21. The Accused Products each comprise circuitry and/or components (hardware and/or software) that modulates the digital signal according to a predetermined modulation system and generates a second symbol. The second symbol comprises a second quadrature baseband

signal. For example, the Accused Products generate a second data symbol (e.g., the HT-SIG), comprising a second quadrature baseband signal, that is modulated according to a predetermined modulation system (e.g., QPSK). *See, e.g.*, Section 19.3.9.4.3 and Figure 19-22 of IEEE 802.11 2016.

22. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

23. At a minimum, Fortinet has known of the '457 patent at least as early as the filing date of the complaint. In addition, Fortinet has known about the '457 patent since at least November 8, 2021, when Fortinet received notice of its infringement via a letter.

24. On information and belief, since at least the above-mentioned date when Fortinet was on notice of its infringement, Fortinet has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, use, purchase, offer to sell, or sell the Accused Products comprising all of the limitations of one or more claims of the '457 patent to directly infringe one or more claims of the '457 patent by using, offering for sale, selling, and/or importing the '457 Accused Products. Since at least the notice provided on the above-mentioned date, Fortinet does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '457 patent. Fortinet intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features

related to infringing features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

25. On information and belief, despite having knowledge of the '457 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '457 patent, Fortinet has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Fortinet's infringing activities relative to the '457 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

26. Redwood has been damaged as a result of Fortinet's infringing conduct described in this Count. Fortinet is, thus, liable to Redwood in an amount that adequately compensates Redwood for Fortinet's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT II

(INFRINGEMENT OF U.S. PATENT NO. 7,917,102)

27. Plaintiff incorporates paragraphs 1 through 26 herein by reference.

28. Redwood is the assignee of the '102 patent, entitled "Radio Transmitting Apparatus and Radio Transmission Method," with ownership of all substantial rights in the '102 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

29. The '102 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '102 patent issued from U.S. Patent Application No. 11/937,422.

30. Fortinet has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '102 patent in this judicial district and elsewhere in Texas and the United States.

31. Fortinet directly infringes the '102 patent via 35 U.S.C. § 271(a) by making, using, offering for sale, selling, and/or importing the Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '102 patent.

32. For example, Fortinet infringes claim 3 of the '102 patent via the Accused Products. Each of the Accused Products comprise a radio transmitting apparatus that transmits a modulated signal.

33. The Accused Products each comprise circuitry and/or components (hardware and/or software) that forms a transmission frame which includes a frequency offset estimation signal for estimating frequency offset of the modulated signal at a receiving apparatus, a channel fluctuation estimation signal for estimating channel fluctuation of the modulated signal at the receiving apparatus and a gain control signal for performing gain control of the modulated signal at the receiving apparatus. *See, e.g.*, Section 19.1.4 of IEEE 802.11 2016. For example, the Accused Products each form a HT-mixed format PPDU frame, which comprises an L-LTF subframe, which is a frequency offset estimation signal. *See, e.g.*, Figure 17-4 of IEEE 802.11 2016. The HT-mixed format PPDU frame also comprises an HT-LTF subframe, which is a channel fluctuation estimation signal. *See, e.g.*, Section 19.3.9.4.6 of IEEE 802.11 2016. The HT-mixed format PPDU frame also comprises an L-STF subframe, which is a gain control signal. *See, e.g.*, Section 19.3.9.3.3 of IEEE 802.11 2016.

34. The Accused Products each comprise circuitry and/or components (hardware and/or software) that transmits the transmission frame. *See, e.g.*, Figure 19-2 of IEEE 802.11 2016. The transmission frame includes a first gain control signal and a second gain control signal. For example, the HT-mixed format PPDU comprises a first gain control signal in the L-STF subframe and a second gain control signal in the HT-STF subframe. *See, e.g.*, Sections 19.3.9.3.3 and 19.3.9.4.5 of IEEE 802.11 2016. The first gain control signal is arranged prior to the frequency offset estimation signal. For example, the L-STF subframe is arranged prior to the L-LTF subframe. *See, e.g.*, Section 19.1.4 of IEEE 802.11 2016. The second gain control is arranged subsequent to the frequency offset estimation signal and prior to the channel fluctuation estimation signal. For example, the HT-STF subframe is arranged subsequent to the L-LTF subframe and prior to the HT-LTF subframe. *See, e.g.*, Section 19.1.4 of IEEE 802.11 2016.

35. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

36. At a minimum, Fortinet has known of the '102 patent at least as early as the filing date of the complaint. In addition, Fortinet has known about the '102 patent since at least November 8, 2021, when Fortinet received notice of its infringement via a letter.

37. On information and belief, since at least the above-mentioned date when Fortinet was on notice of its infringement, Fortinet has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, use, purchase, offer to sell, or sell the Accused Products comprising all of the limitations of one or more claims of the '102 patent to directly infringe one or more claims of the '102 patent by using, offering for sale, selling, and/or importing the '102 Accused Products. Since at least the notice provided on the above-mentioned date, Fortinet does so with knowledge, or with willful blindness of the fact, that

the induced acts constitute infringement of the '102 patent. Fortinet intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, inter alia, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features related to infringing features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

38. On information and belief, despite having knowledge of the '102 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '102 patent, Fortinet has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Fortinet's infringing activities relative to the '102 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

39. Redwood has been damaged as a result of Fortinet's infringing conduct described in this Count. Fortinet is, thus, liable to Redwood in an amount that adequately compensates Redwood for Fortinet's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT III

(INFRINGEMENT OF U.S. PATENT NO. 7,983,140)

40. Plaintiff incorporates paragraphs 1 through 39 herein by reference.

41. Redwood is the assignee of the '140 patent, entitled "Transmitting Apparatus, Receiving Apparatus, and Communication System for Formatting Data," with ownership of all substantial rights in the '140 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

42. The '140 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '140 patent issued from U.S. Patent Application No. 11/004,256.

43. Fortinet has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '140 patent in this judicial district and elsewhere in Texas and the United States.

44. Fortinet directly infringes the '140 patent via 35 U.S.C. § 271(a) by making, using, offering for sale, selling, and/or importing the Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '140 patent.

45. For example, Fortinet infringes claim 1 of the '140 patent via the Accused Products. The Accused Products comprise a transmitting apparatus, in an orthogonal frequency division multiplexing communication system. *See, e.g.*, Sections 17.3.8.2 and 19.1.1 of IEEE 802.11 2016.

46. The Accused Products each comprise circuitry and/or components (hardware and/or software) for converting a transmission signal into a transmission time slot. *See, e.g.*, Section 17.3.8.2 of IEEE 802.11 2016. For example, the Accused Products convert PSDUs into PPDU. *See, e.g.*, Sections 17.3.1 and 17.3.2.1 of IEEE 802.11 2016.

47. The Accused Products each comprise circuitry and/or components (hardware and/or software) for generating a frame that includes a series of n (greater than 1) time slots and a

frame guard period added to the series of n time slots, where each time slot includes an effective symbol period and guard period added to the effective symbol period, where the length of the series of n time slots is less than the length of the frame. For example, each of the Accused Products generates a PPDU frame that comprises a series of time slots associated with the signal and data OFDM symbols. *See, e.g.*, Figures 17-1 and 17-4 of IEEE 802.11 2016. Each of the Accused Products generates cyclic shifts that are added to the series of n time slots. *See, e.g.*, Sections 19.3.4 and 19.3.9.3.2 of IEEE 802.11 2016. Each time slot in the PPDU frame comprises an effective symbol period, and a guard period is added at the start of each effective symbol period. *See, e.g.*, Table 19-6 and Figure 17-4 of IEEE 802.11 2016. Further, the length of the series of n time slots is less than the total length of the PPDU frame. *See, e.g.*, Figure 17-4 of IEEE 802.11 2016.

48. The Accused Products each comprise circuitry and/or components (hardware and/or software) for transmitting the generated frame as a radio signal. *See, e.g.*, Section 17.3.8.2 of IEEE 802.11 2016.

49. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

50. At a minimum, Fortinet has known of the '140 patent at least as early as the filing date of the complaint. In addition, Fortinet has known about the '140 patent since at least November 8, 2021, when Fortinet received notice of its infringement via a letter.

51. On information and belief, since at least the above-mentioned date when Fortinet was on notice of its infringement, Fortinet has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, use, purchase, offer to sell, or sell the Accused Products comprising all of the limitations of one or more claims of the

'140 patent to directly infringe one or more claims of the '140 patent by using, offering for sale, selling, and/or importing the '140 Accused Products. Since at least the notice provided on the above-mentioned date, Fortinet does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '140 patent. Fortinet intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, inter alia, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features related to infringing features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

52. On information and belief, despite having knowledge of the '140 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '140 patent, Fortinet has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Fortinet's infringing activities relative to the '140 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

53. Redwood has been damaged as a result of Fortinet's infringing conduct described in this Count. Fortinet is, thus, liable to Redwood in an amount that adequately compensates

Redwood for Fortinet's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT IV

(INFRINGEMENT OF U.S. PATENT NO. 8,005,165)

54. Plaintiff incorporates paragraphs 1 through 53 herein by reference.

55. Redwood is the assignee of the '165 patent, entitled "MIMO-OFDM Transmission Device, MIMO-OFDM Transmission Method, Reception Apparatus and Reception Method," with ownership of all substantial rights in the '165 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

56. The '165 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '165 patent issued from U.S. Patent Application No. 12/840,024.

57. Fortinet has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '165 patent in this judicial district and elsewhere in Texas and the United States.

58. Fortinet directly infringes the '165 patent via 35 U.S.C. § 271(a) by making, using, offering for sale, selling, and/or importing the Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '165 patent.

59. For example, Fortinet infringes claim 1 of the '165 patent via the Accused Products. The Accused Products comprise a MIMO-OFDM transmission apparatus. *See, e.g.*, Sections 19.1.1 and 19.1.2 of IEEE 802.11 2016.

60. The Accused Products each comprise circuitry and/or components (hardware and/or software) configured to form a plurality of OFDM signals, where each of the plurality of

OFDM signals comprise several pilot carriers, the several pilot carrier being located on identical carrier positions among the plurality of OFDM signals, such that orthogonal pilot sequences are assigned to identical time slots of pilot carriers on an identical carrier position among the plurality of OFDM signals, and an identical pilot sequence is assigned to at least two of the plurality of OFDM signals. For example, each of the Accused Products form a plurality of HT-mixed format PPDUS to transmit as OFDM signals, where the stream parser divides the plurality of signals into spatial streams, such that each stream comprises a plurality of OFDM signals. *See, e.g.*, Section 19.3.3 of IEEE 802.11 2016. Each of the plurality of OFDM signals comprise four pilot carriers inserted in carrier positions -21, -7, 7, and 21. *See, e.g.*, Section 19.3.11.10 of IEEE 802.11 2016. The pilot sequences corresponding to different spatial streams are orthogonal and assigned to identical time slots of pilot carrier on an identical position among the plurality of OFDM signals. *See, e.g.*, Section 19.3.11.10 and Table 19-19 of IEEE 802.11 2016. The Accused Products assign an identical pilot sequence to each OFDM symbol corresponding to a particular spatial stream. *See, e.g.*, Section 19.3.11.10 and Table 19-19 of IEEE 802.11 2016.

61. The Accused Products each comprise a plurality of antennas configured to transmit the plurality of OFDM signals over an identical frequency band at an identical time. For example, transmissions from each antenna are simultaneous and use the same channel having a particular width (e.g., 20 MHz). *See, e.g.*, Section 19.3.15.1 and Tables 19-28, 19-29, and 19-30 of IEEE 802.11 2016.

62. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

63. At a minimum, Fortinet has known of the '165 patent at least as early as the filing date of the complaint. In addition, Fortinet has known about the '165 patent since at least November 8, 2021, when Fortinet received notice of its infringement via a letter.

64. On information and belief, since at least the above-mentioned date when Fortinet was on notice of its infringement, Fortinet has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, importers, and/or consumers that import, use, purchase, offer to sell, or sell the Accused Products comprising all of the limitations of one or more claims of the '165 patent to directly infringe one or more claims of the '165 patent by using, offering for sale, selling, and/or importing the '165 Accused Products. Since at least the notice provided on the above-mentioned date, Fortinet does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '165 patent. Fortinet intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, inter alia, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features related to infringing features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

65. On information and belief, despite having knowledge of the '165 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '165 patent, Fortinet has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Fortinet's infringing activities relative to the '165 patent have been,

and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

66. Redwood has been damaged as a result of Fortinet's infringing conduct described in this Count. Fortinet is, thus, liable to Redwood in an amount that adequately compensates Redwood for Fortinet's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT V

(INFRINGEMENT OF U.S. PATENT NO. 8,155,224)

67. Plaintiff incorporates paragraphs 1 through 66 herein by reference.

68. Redwood is the assignee of the '224 patent, entitled "Transmission Method, Transmission Apparatus, and Reception Apparatus," with ownership of all substantial rights in the '224 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

69. The '224 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '224 patent issued from U.S. Patent Application No. 12/698,917.

70. Fortinet has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '224 patent in this judicial district and elsewhere in Texas and the United States.

71. Fortinet directly infringes the '224 patent via 35 U.S.C. § 271(a) by using and/or testing the Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '224 patent.

72. For example, Fortinet infringes claim 1 of the '224 patent via the Accused Products. The Accused Products perform a method of transmitting modulation signals. *See, e.g.*, Sections 19.1.1 and 19.1.2 of IEEE 802.11 2016.

73. The Accused Products each generate a plurality of modulation signals, where each modulation signal to be transmitted from a different one of a plurality of antennas, where each modulation signal includes a pilot symbol sequence consisting of a plurality of pilot symbols used for demodulation. For example, each of the Accused Products generates modulation signals (e.g., HT-mixed format PPDU) which are to be sent to a plurality of antennas. *See, e.g.*, Section 19.3.3 of IEEE 802.11 2016. Each OFDM symbol includes a pilot symbol sequence consisting of four pilot symbols used for demodulation. *See, e.g.*, Sections 17.3.5.9 and 19.3.11.10 of IEEE 802.11 2016.

74. Each of the Accused Products insert each of the pilot symbol sequences at the same temporal point in each modulation signal, wherein the pilot symbol sequences are orthogonal to each other with zero mutual correlation among the plurality of modulation signals, where each pilot symbol has a non-zero amplitude, where the quantity of the plurality of pilot symbols in each sequence being greater than the quantity of the plurality of modulation signals to be transmitted. For example, the Accused Products insert each of the four pilot symbol sequences at the same temporal point in each modulation signal. *See, e.g.*, Section 19.3.11.10 of IEEE 802.11 2016. The pilot symbol sequences corresponding to different spatial streams are orthogonal and have zero mutual correlation. *See, e.g.*, Table 19-19 of IEEE 802.11 2016. The pilot symbols are BPSK modulated and have a non-zero amplitude. *See, e.g.*, Section 17.3.5.9 of IEEE 802.11 2016. Each pilot symbol sequence contains four pilot symbols, which is greater than the modulation signals to

be transmitted by two or three antennas utilized by the Accused Products. *See, e.g.*, Sections 19.1.1 and 19.3.11.10 of IEEE 802.11 2016.

75. Each of the Accused Products transmit in an identical frequency band the plurality of modulation signals from the plurality of antennas, where each modulation signal comprises different transmission data and one of the pilot symbol sequences. For example, each of the Accused Products transmit the plurality of modulation signals in the same channel having a particular width (e.g., 20 MHz) from two or three antennas. *See, e.g.*, Sections 19.3.15.1, Tables 19-28, 19-29, and 19-30, and Figure 17-13 of IEEE 802.11 2016. Each stream of data is divided into multiple spatial streams by the Accused Products to form respective modulation signals comprising different transmission data during encoding. *See, e.g.*, Section 19.3.4 of IEEE 802.11 2016. Further, each of the modulation signals comprises one of the pilot symbol sequences. *See, e.g.*, Section 19.3.11.10 of IEEE 802.11 2016.

76. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

77. At a minimum, Fortinet has known of the '224 patent at least as early as the filing date of the complaint. In addition, Fortinet has known about the '224 patent since at least November 8, 2021, when Fortinet received notice of its infringement via a letter.

78. On information and belief, since at least the above-mentioned date when Fortinet was on notice of its infringement, Fortinet has actively induced, under U.S.C. § 271(b), its distributors, customers, testing outfits, subsidiaries, and/or consumers that use the Accused Products comprising all of the limitations of one or more claims of the '224 patent to directly infringe one or more claims of the '224 patent by using the '224 Accused Products. Since at least the notice provided on the above-mentioned date, Fortinet does so with knowledge, or with willful

blindness of the fact, that the induced acts constitute infringement of the '224 patent. Fortinet intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, testing outfits, subsidiaries, and/or consumers by at least, inter alia, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features related to infringing features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

79. On information and belief, despite having knowledge of the '224 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '224 patent, Fortinet has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Fortinet's infringing activities relative to the '224 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

80. Redwood has been damaged as a result of Fortinet's infringing conduct described in this Count. Fortinet is, thus, liable to Redwood in an amount that adequately compensates Redwood for Fortinet's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT VI

(INFRINGEMENT OF U.S. PATENT NO. 7,460,485)

81. Plaintiff incorporates paragraphs 1 through 80 herein by reference.

82. Redwood is the assignee of the '485 patent, entitled "Methods for Performing Medium Dedication in Order to Ensure the Quality of Service for Delivering Real-Time Data Across Wireless Network," with ownership of all substantial rights in the '485 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

83. The '485 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '485 patent issued from U.S. Patent Application No. 10/654,901.

84. Fortinet has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '485 patent in this judicial district and elsewhere in Texas and the United States.

85. Fortinet directly infringes the '485 patent via 35 U.S.C. § 271(a) by using and/or testing the Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '485 patent.

86. For example, Fortinet infringes claim 1 of the '485 patent via the Accused Products. The Accused Products perform a method for guaranteeing a quality of service (QoS) in delivering real-time data across a transmission medium. *See, e.g.*, Section 4.3.10 of IEEE 802.11 2016 and Section 1.0 of the Wi-Fi Multimedia Technical Specification, Version 1.2.0.

87. The Accused Products each specify a traffic requirement for a traffic stream in accordance with a generic first specification. For example, the Accused Products utilize the traffic specification ("TSPEC") element, which is a traffic requirement for a traffic stream based on QoS

parameters for a particular STA. *See, e.g.*, Section 9.4.2.30 of IEEE 802.11 2016 and Figure 14 of the Wi-Fi Multimedia Technical Specification, Version 1.2.0.

88. The Accused Products each transform the specified traffic requirement in accordance with a generic second specification based on the specified traffic requirement, an overhead requirement for the traffic stream and a condition of the transmission medium. For example, the STA sends the TSPEC to the access point, where the access point transforms the TSPEC into medium time. *See, e.g.*, Section 3.5.2 of the Wi-Fi Multimedia Technical Specification, Version 1.2.0. Medium Time is a traffic stream requirement utilized by the Accused Products which takes into consideration elements from the TSPEC, overhead requirements, and expected error performance on the medium. *See, e.g.*, Section K.4.1 of IEEE 802.11 2016 and A.3 of the Wi-Fi Multimedia Technical Specification, Version 1.2.0.

89. The Accused Products each adjust the generic second specification based on feedback obtained from monitoring the condition of the transmission medium. For example, the Accused Products adjust the medium time with the receipt of each new TSPEC. *See, e.g.*, Sections 3.5.1 and 3.5.3 of the Wi-Fi Multimedia Technical Specification, Version 1.2.0.

90. The Accused Products each aggregate a plurality of specifications for a plurality of traffic streams into a single specification to reduce resources required to maintain and process the plurality of specifications and overhead incurred in medium dedication. For example, the Accused Products aggregate the mean data rate and burst size for a plurality of traffic streams to generate a single token bucket specification, which allows the Accused Products to manage the STA's admitted flows more effectively. *See, e.g., See, e.g.*, Section 3.5.1 of the Wi-Fi Multimedia Technical Specification, Version 1.2.0.

91. The Accused Products each generate a medium dedication schedule according to the single specification. For example, the Accused Products generate a medium dedication schedule using the token bucket specification as its schedule parameter. *See, e.g.*, Sections 3.5.2 and 3.5.3 of the Wi-Fi Multimedia Technical Specification, Version 1.2.0.

92. The Accused Products each perform medium dedication in accordance with the medium dedication schedule to coordinate transmission of the plurality of traffic streams. For example, the Accused Products perform the medium dedication according to the schedule to coordinate transmission between a plurality of STAs with admitted traffic streams. *See, e.g.*, Section 3.5.2 of the Wi-Fi Multimedia Technical Specification, Version 1.2.0.

93. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

94. At a minimum, Fortinet has known of the '485 patent at least as early as the filing date of the complaint. In addition, Fortinet has known about the '485 patent since at least November 8, 2021, when Fortinet received notice of its infringement via a letter.

95. On information and belief, since at least the above-mentioned date when Fortinet was on notice of its infringement, Fortinet has actively induced, under U.S.C. § 271(b), its distributors, customers, testing outfits, subsidiaries and/or consumers that use the Accused Products comprising all of the limitations of one or more claims of the '485 patent to directly infringe one or more claims of the '485 patent by using the '485 Accused Products. Since at least the notice provided on the above-mentioned date, Fortinet does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '485 patent. Fortinet intends to cause, and has taken affirmative steps to induce infringement by its distributors, testing outfits, customers, subsidiaries, and/or consumers by at least, inter alia, creating advertisements

that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features related to infringing features in the Accused Products, and/or providing technical support, replacement parts, or services for these products to these purchasers in the United States.

96. On information and belief, despite having knowledge of the '485 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '485 patent, Fortinet has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Fortinet's infringing activities relative to the '485 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

97. Redwood has been damaged as a result of Fortinet's infringing conduct described in this Count. Fortinet is, thus, liable to Redwood in an amount that adequately compensates Redwood for Fortinet's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT VII

(INFRINGEMENT OF U.S. PATENT NO. 7,688,901)

98. Plaintiff incorporates paragraphs 1 through 97 herein by reference.

99. Redwood is the assignee of the '901 patent, entitled "Transmission Method, Transmission Apparatus, and Reception Apparatus," with ownership of all substantial rights in

the '901 patent, including the right to exclude others and to enforce, sue, and recover damages for past and future infringements.

100. The '901 patent is valid, enforceable, and was duly issued in full compliance with Title 35 of the United States Code. The '901 patent issued from U.S. Patent Application No. 10/486,895.

101. Fortinet has and continues to directly and/or indirectly infringe (by inducing infringement) one or more claims of the '901 patent in this judicial district and elsewhere in Texas and the United States.

102. Fortinet directly infringes the '901 patent via 35 U.S.C. § 271(a) by using and/or testing the Accused Products, their components and processes, and/or products containing the same that incorporate the fundamental technologies covered by the '901 patent.

103. For example, Fortinet infringes claim 1 of the '901 patent via the Accused Products. The Accused Products transmit modulation signals. *See, e.g.*, Sections 19.1.1 and 19.1.2 of IEEE 802.11 2016.

104. The Accused Products each generate a plurality of modulation signals each of which is to be transmitted from a different one of a plurality of antennas, where each modulation signal is to include one or more preamble symbol groups each consisting of a plurality of preamble symbols used for demodulation. For example, the Accused Products generate modulation signals (e.g., HT-mixed format PPDU) which are transmitted from a plurality of antennas. *See, e.g.*, Sections 19.3.3 of IEEE 802.11 2016. Each OFDM symbol within a modulation signal comprises a pilot symbol sequence consisting of four pilot symbols used for demodulation. *See, e.g.*, Sections 17.3.5.9 and 19.3.11.10 of IEEE 802.11 2016.

105. The Accused Products each insert the one or more preamble symbol groups at the same one or more temporal points in each modulation signal, wherein the one or more preamble symbol groups at the one or more temporal points are orthogonal to other preamble symbol groups at the same one or more temporal points with zero mutual correlation among the plurality of modulation signals, each preamble symbol having a non-zero amplitude, and each preamble symbol group consisting of preamble symbols the quantity of which is greater than that of the plurality of modulation signals to be transmitted. For example, each of the Accused Products insert one or more OFDM symbols comprising a pilot symbol sequence in each modulation signal, where each modulation signal sent from different antennas are transmitted simultaneously in time. *See, e.g.,* Section 19.3.11.10 of IEEE 802.11 2016. The pilot symbol sequences corresponding to different spatial streams are orthogonal at the same one or more temporal points with zero mutual correlation among the plurality of spatial streams. *See, e.g.,* Table 19-19 of IEEE 802.11 2016. The pilot symbols are BPSK modulated and have a non-zero amplitude. *See, e.g.,* Section 17.3.5.9 of IEEE 802.11 2016. Each pilot symbol sequence contains four pilot symbols, which is greater than the modulation signals to be transmitted by two or three antennas utilized by the Accused Products. *See, e.g.,* Sections 19.1.1 and 19.3.11.10 of IEEE 802.11 2016.

106. The Accused Products each transmit the plurality of modulation signals, each comprising transmission data, which is different between the plurality of modulation signals, and the one or more preamble symbol groups, from the plurality of antennas, respectively, in an identical frequency band. For example, each of the Accused Products transmit the plurality of modulation signals comprising transmission data and the pilot symbol sequence from the two or three antennas in the same channel having a particular width (e.g., 20 MHz). *See, e.g.,* Section 19.3.15.1, Tables 19-28, 19-29, and 19-30, and Figure 17-13 of IEEE 802.11 2016. Each stream

of data to be transmitted is divided into multiple spatial streams to form respective modulation signals having different transmission data during the encoding process. *See, e.g.*, Section 19.3.4 of IEEE 802.11 2016.

107. The technology discussion above and the exemplary Accused Products provide context for Plaintiff's infringement allegations.

108. At a minimum, Fortinet has known of the '901 patent at least as early as the filing date of the complaint. In addition, Fortinet has known about the '901 patent since at least November 8, 2021, when Fortinet received notice of its infringement via a letter.

109. On information and belief, since at least the above-mentioned date when Fortinet was on notice of its infringement, Fortinet has actively induced, under U.S.C. § 271(b), its distributors, customers, subsidiaries, testing outfits, and/or consumers that use the Accused Products comprising all of the limitations of one or more claims of the '901 patent to directly infringe one or more claims of the '901 patent by using the '901 Accused Products. Since at least the notice provided on the above-mentioned date, Fortinet does so with knowledge, or with willful blindness of the fact, that the induced acts constitute infringement of the '901 patent. Fortinet intends to cause, and has taken affirmative steps to induce infringement by its distributors, importers, customers, subsidiaries, and/or consumers by at least, *inter alia*, creating advertisements that promote the infringing use of the Accused Products, creating and/or maintaining established distribution channels for the Accused Products into and within the United States, manufacturing the Accused Products in conformity with U.S. laws and regulations, distributing or making available instructions or manuals for these products to purchasers and prospective buyers, testing and certifying features related to infringing features in the Accused Products, and/or providing

technical support, replacement parts, or services for these products to these purchasers in the United States.

110. On information and belief, despite having knowledge of the '901 patent and knowledge that it is directly and/or indirectly infringing one or more claims of the '901 patent, Fortinet has nevertheless continued its infringing conduct and disregarded an objectively high likelihood of infringement. Fortinet's infringing activities relative to the '901 patent have been, and continue to be, willful, wanton, malicious, in bad-faith, deliberate, consciously wrongful, flagrant, characteristic of a pirate, and an egregious case of misconduct beyond typical infringement such that Plaintiff is entitled under 35 U.S.C. § 284 to enhanced damages up to three times the amount found or assessed.

111. Redwood has been damaged as a result of Fortinet's infringing conduct described in this Count. Fortinet is, thus, liable to Redwood in an amount that adequately compensates Redwood for Fortinet's infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

CONCLUSION

112. Plaintiff Redwood is entitled to recover from Fortinet the damages sustained by Plaintiff as a result of Fortinet's wrongful acts, and willful infringement, in an amount subject to proof at trial, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court.

113. Plaintiff has incurred and will incur attorneys' fees, costs, and expenses in the prosecution of this action. The circumstances of this dispute may give rise to an exceptional case within the meaning of 35 U.S.C. § 285, and Plaintiff is entitled to recover its reasonable and necessary attorneys' fees, costs, and expenses.

JURY DEMAND

114. Plaintiff hereby requests a trial by jury pursuant to Rule 38 of the Federal Rules of Civil Procedure.

PRAYER FOR RELIEF

115. Plaintiff respectfully requests that the Court find in its favor and against Fortinet, and that the Court grant Plaintiff the following relief:

1. A judgment that Fortinet has infringed the Asserted Patents as alleged herein, directly and/or indirectly by way of inducing infringement of such patents;
2. A judgment for an accounting of all damages sustained by Plaintiff as a result of the acts of infringement by Fortinet;
3. A judgment and order requiring Fortinet to pay Plaintiff damages under 35 U.S.C. § 284, including up to treble damages as provided by 35 U.S.C. § 284, and any royalties determined to be appropriate;
4. A judgment and order requiring Fortinet to pay Plaintiff pre-judgment and post-judgment interest on the damages awarded;
5. A judgment and order finding this to be an exceptional case and requiring Fortinet to pay the costs of this action (including all disbursements) and attorneys' fees as provided by 35 U.S.C. § 285; and
6. Such other and further relief as the Court deems just and equitable.

Dated: February 4, 2022

Respectfully submitted,

/s/ Patrick J. Conroy

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